AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (Original): An optical bar-code reader comprising: an optical scanner that optically scans a bar code to obtain optical power of light reflected from white bars and black bars of the bar code; a differentiation unit that calculates a differential of the optical power to obtain a differential waveform; a dividing unit that divides the differential waveform into a positive waveform and a negative waveform; a bar-code correcting unit that calculates correct widths of black bars in the bar code from the positive waveform and the negative waveform to create corrected bar-code data; and a converter that converts the corrected bar-code data into character data that is an array of numerals and alphabets.

Claim 2 (Original): The bar-code reader according to claim 1, wherein the bar-code correcting unit further comprises: an acquisition unit that acquires amplitude information of the positive waveform using a timing signal corresponding to the positive waveform and amplitude information of the negative waveform using a timing signal corresponding to the negative waveform; and a synthesizing unit that synthesizes the amplitude information of the positive waveform and the amplitude information of the negative waveform to create the corrected bar-code data.

Claim 3 (Original): The bar-code reader according to claim 1, wherein the bar-code correcting unit further comprises: an acquisition unit that acquires amplitude information of the positive waveform by generating a timing signal corresponding to the positive waveform, and amplitude information of the negative waveform using a timing signal in which the timing signal corresponding to the positive waveform is delayed by a predetermined amount; and a synthesizing unit that synthesizes the amplitude information of the positive waveform and the amplitude information of the negative waveform to create the corrected bar-code data.

Claim 4 (Original): The bar-code reader according to claim 1, wherein the bar-code correcting unit further comprises: a waveform-generating unit that generates a synthesized waveform by synthesizing the positive waveform with the negative waveform that is delayed by a predetermined amount; and an acquisition unit that acquires amplitude information from the synthesized waveform using a predetermined timing signal and uses the amplitude information acquired as the corrected bar-code data.

Claim 5 (Original): The bar-code reader according to claim 3, wherein the acquisition unit calculates the amount of delay from a correlation between the positive waveform and the negative waveform.

Claim 6 (Original): The bar-code reader according to claim 4, wherein the waveform-generating unit calculates the amount of delay from a correlation between the positive waveform

and the negative waveform.

Claim 7 (Original): The bar-code reader according to claim 5, wherein the acquisition unit calculates the correlation by performing a fast Fourier transformation of each of the positive waveform and the negative waveform.

Claim 8 (Original): The bar-code reader according to claim 6, wherein the waveform-generating unit calculates the correlation by performing a fast Fourier transformation of each of the positive waveform and the negative waveform.

Claim 9 (Original): The bar-code reader according to claim 3, wherein the acquisition unit calculates the amount of delay from a ratio of a width of the black bar or a width of the white bar and a basic width of the bar code.

Claim 10 (Original): The bar-code reader according to claim 4, wherein the waveform-generating unit calculates the amount of delay from a ratio of a width of the black bar or a width of the white bar and a basic width of the bar code.

Claim 11 (Original): The bar-code reader according to claim 2, wherein, the synthesizing unit controls a phase during synthesis of the amplitude information of the positive waveform and the amplitude information of the negative waveform such that a total of absolute value of each

amplitude included in a result of synthesis becomes maximum.

Claim 12 (Original): The bar-code reader according to claim 3, wherein, the synthesizing

unit controls a phase during synthesis of the amplitude information of the positive waveform and

the amplitude information of the negative waveform such that a total of absolute value of each

amplitude included in a result of synthesis becomes maximum.

Claim 13 (Original): The bar-code reader according to claim 1, further comprising a basic-

width calculating unit that calculates the basic width of the bar code from either the positive

waveform or the negative waveform.

Claim 14 (Currently Amended): A method of reading a bar code comprising <u>the steps of</u>:

optically scanning a bar code to obtain optical power of light reflected from white bars and

black bars of the bar code;

calculating a differential of the optical power to obtain a differential waveform;

dividing the differential waveform into a positive waveform and a negative waveform;

calculating correct widths of black bars in the bar code from the positive waveform and

the negative waveform;

creating corrected bar-code data; and

converting the corrected bar-code data into character data that is an array of numerals and

alphabets.

Claim 15 (Currently Amended): The method according to claim 14, wherein the ~~computing~~ step of calculating correct widths of black bars further includes the steps of:

acquiring amplitude information of the positive waveform using a timing signal corresponding to the positive waveform and amplitude information of the negative waveform using a timing signal corresponding to the negative waveform; and

synthesizing the amplitude information of the positive waveform and the amplitude information of the negative waveform to create the corrected bar-code data.

Claim 16 (Currently Amended): The method according to claim 14, wherein the ~~computing~~ step of calculating correct widths of black bars further includes the steps of:

acquiring amplitude information of the positive waveform by generating a timing signal corresponding to the positive waveform, amplitude information of the negative waveform using a timing signal in which the timing signal corresponding to the positive waveform is delayed by a predetermined amount; and

synthesizing the amplitude information of the positive waveform and the amplitude information of the negative waveform to create the corrected bar-code data.

Claim 17 (Currently Amended): The method according to claim 16, wherein the ~~computing~~ step of calculating correct widths of black bars further includes the steps of:

generating a synthesized waveform by synthesizing the positive waveform with the negative waveform that is delayed by a predetermined amount; and

acquiring amplitude information using a predetermined timing signal from the synthesized waveform and using the amplitude information acquired as the corrected bar-code data.

Claim 18 (Currently Amended): A computer program that makes a computer execute the steps of:

optically scanning a bar code to obtain optical power of light reflected from white and black bars of the bar code;

calculating a differential of the optical power to obtain a differential waveform;

dividing the differential waveform into a positive waveform and a negative waveform;

calculating correct widths of black bars in the bar code from the positive waveform and the negative waveform and creating corrected bar-code data; and converting the corrected bar-code data into character data that is an array of numerals and alphabets.